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LIVING CONDITIONS ON WESTERN FARMS

IN a letter commenting upon the report on *Rural Planning and Development* by Thomas Adams, recently published by the Commission of Conservation, a gentleman prominently identified with financial conditions in the Prairie Provinces, and especially with the handicaps of homesteaders and settlers in establishing themselves in homes under satisfactory living conditions, has this to say:

"I feel very keenly that some such organized effort to improve living conditions on the farms in the Western Provinces of Canada is essential to the development which the Dominion looks forward to.

"Personally, I am much more in favor of making living conditions acceptable to thrifty, enterprising settlers than to giving these settlers direct aid, because I feel that the right sort of settlers will make their own way, if the environment is endurable.

"I have been impressed on my frequent trips through the more outlying sections of Alberta, with the fact that the chief handicaps to progress on the part of the farming population are not the natural resources of the country, *but the unorganized and insufficient systems of marketing, transportation to market and certain necessaries of life, such as medical attention.*

"To illustrate my point, and not because of the location of the district, I would refer to the section of Alberta lying directly west of the city of Red Deer, along the new lines of the Canadian Pacific and Canadian Northern, between Red Deer and Rocky Mountain House. This section of Alberta was quite largely homesteaded prior to the coming of the railways, by *a class of homesteaders who are, on the whole, ambitious, thrifty and able to withstand the natural hardships.* They included farmers from established sections of Oregon, Washington and other states as well as emigrants from Scandinavian countries and Finland. *The natural conditions are all that could be desired for mixed farming,* the soil being rich and the country well watered, with plenty of shelter. There is also an abundance of rough timber and firewood and a great profusion of natural grasses. These natural conditions attracted the early settlers to such a point that the country was practically all taken up. *Even with the coming of the railroads, there has been practically no advance in land values for seven or eight years, and the development of the section has been decidedly backward, as compared with other parts of Alberta,* although the officials of the railroads operating there, admit that traffic has been considerably heavier than they expected. I have always felt that this was a section that had been overlooked, but there are, nevertheless, conditions which have handicapped the development of the section other than the mere accident of location. For example, we are getting more complaints from farmers in that section than from any other neighborhood. Inquiry among farmers and store-keepers last summer revealed the fact that there were very few competent doctors west of Red Deer, and that farmers and their families find it difficult to get medical attention, in case of need. This, of course, is a particularly serious and vital defect in the social organization of the community. This section of Alberta has considerable areas of low lying land and although an effort is being made to improve the roads, they are not yet what they ought to be and require expert handling, under organized management, rather than the haphazard local treatment they are now getting. In fact, Alberta would gain greatly if her taxes for road improvements were expended through a centralized organization, rather than by local boards. There is also the vicious principle of allowing farmers to work out their taxes.

"In looking over a review of your Report, it occurred to me that some such district as I have spoken of west of Red Deer could be taken as an example and attention devoted to it, with a view to improving conditions there, where they can be improved, and that this action would be a very valuable object lesson of what can be accomplished in other rural districts.

"The problem may be a great deal more complex than it appears on the surface, but it is certainly worth the while of those interested in the country, to do what they can to keep the settlers who are already on the ground contented with their lot, since it is far easier to keep them on the ground than to get new ones."

ANGLO-FRENCH TOWN PLANNING IN 1298

When Henry II of England married Eleanor of Provence the union brought certain French territory under his crown. In succeeding years Henry was continually struggling with Louis IX for supremacy in Southern France and both monarchs planned and founded new towns as bases for military operations.

In 1298 Edward I wrote from Bordeaux to London asking the authorities to send them four competent town planners—"those who best know how to divide, order, and arrange a new town in the manner that will be most beneficial to us and the merchants."

Montpazier in the department of the Dordogne is said to be the best example of these towns—and others laid out by Edward were Libourne, Sauveterre, Monsegur and LaLuide.

In Canada, where the two peoples have enjoyed the entente cordial and have intermarried and contributed to each other's genius and strength over so many centuries,—with sundry and passing breaks caused by political ambition and not by racial animosity—may we not derive inspiration from the early Anglo-French town planners of old France, and seek to "divide, order and arrange" our cities and towns in the manner that will be most beneficial to the commonwealth.

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NEED FOR GOVERNMENT ORGANIZATION OF LAND SETTLEMENT

By

George Phelps, Toronto

CANADA is, first and foremost, an agricultural country. Her prosperity depends also upon the produce from other primary sources, such as forests, mines and fisheries. A glance at the trade reports for 1915 and 1916 shows, however, that by far the most important is agriculture.

An article in the *Monetary Times* for January, 1916 (p. 28), gives a statistical analysis of Canada's primary production for the past six years, and summarizes the conclusions derived from an investigation of the preceding five-year period, ending 1914, as follows:—

"1. That production from natural resources in the five-year period considered increased but little, and did not keep pace with industrial and commercial expansion.

"That its failure to do so helped to bring about and maintain a general business depression.

"2. That the population increased faster than the production of foodstuffs and other raw materials.

"That such excess was undesirable and a component part of the cause given above for the decline in our prosperity since 1912. And further, that until immigration could be made more productive it was not desirable."

These conclusions were based on figures obtained from *Canada Year Books*, the departments concerned or Census and Statistics Office, Ottawa.

The article further gave figures to show that the campaign for increased production in 1915, together with a good harvest, sent the figures for the total wealth produced from primary sources, above the billion-dollar mark for the first time in the history of the Dominion. Although the crops were less in 1916, prices were higher, and this figure was again reached; there is, however, likely to be a further falling off in production, due to a scarcity of labour on the land, and it is necessary that we should use every means in our power to overcome this shortage by increased efficiency, at the same time bearing in mind a possible return of surplus labour conditions after the war.

This question of bettering our agricultural conditions and increasing our primary production is intimately connected with the problem of rural depopulation and the present unhealthy growth of large towns, and it is probable that if we can satisfactorily solve the first problem, the other two will to a very great extent solve themselves; therefore, it may be said with certainty, that there is no more important question which can be taken up at the present time.

DEPENDENCE UPON PRIMARY INDUSTRIES

For many years our rural population has been stationary or decreasing, whilst towns have been growing at an enormous rate; in other words, we are realizing one of the conclusions arrived at in the article mentioned above, that the population has been increasing faster than the production of foodstuffs and other raw materials. There is a limit to such a process, which we appear to have about reached, for, however

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much we may stimulate manufacturing industries in the towns, we depend entirely for the supply of raw materials of food and clothing on the primary industries, and our expansion in other ways is limited by that supply.

There are, of course, many industries carried on in the towns which are helping primary production in such a way that they could not be dispensed with, such as the manufacture of machinery, the manufacturing and distributing of farm products, the railway and transportation business and so on; but so far as there are trades and businesses carried on which are not helping this production, but which are attracting and keeping round them large numbers of potential producers, who, under these circumstances, are mainly consumers only, to this extent is the growth of our towns unhealthy and our useful production lessened by at least the value of this labour. The floating population of unemployed living in the towns in normal times represents consumption also and so much loss of production.

Without a doubt, we have been saved for the past two winters, but perhaps only temporarily, from a very serious unemployment problem, by the fact that so many who would otherwise have been out of work are now engaged in the war, either as soldiers or workers on munitions. But what is to happen when the war is over? That question is frequently being asked, and it surely is a very serious question, and one which we must set about very seriously to answer as early as possible; we should begin at once to consider how we can induce all these men to become producers as soon as they are again at liberty, for only in this way can we pay or make up for the tremendous wastage which is now going on.

Whether the number of immigrants is large or small after the war, there will be a large body of men needing work, and it is imperative that a fair proportion of them should be employed on agricultural work, in order to keep the balance between production and consumption.

Help The Settler To Help Himself

Never has there been a time when the need of production of the necessaries of life was so great as at present, when so much is being consumed by the great war; and, in order to utilize to the utmost our available energies in making up for this wastage, our first step must be an organization and concentration of our agricultural industries, the necessary capital for which must, at least in part, be supplied by the Government. Even in the best of times we know that settlers have usually to borrow capital, often at high rates of interest, so that frequently their home, their goods and their labour are mortgaged for many years of their lives. This nearly always means that they are hampered in their operations, and production suffers because they refrain from getting necessary implements and carrying out improvements which, though badly needed, would mean still further borrowing. The present system of land settlement is also wasteful, in that it enables and encourages the holding from use of large areas of the best farm lands by speculators who are waiting their time for higher prices and profits on the sale of farms. On the other hand, agents, who are only interested in getting their commission by selling farms, are often able to induce settlers to take up land that is of little use for farm purposes and which is soon abandoned. By such means agricultural production is hindered and settlers discouraged.

Fictitious values, too, are often placed on the timber standing on the land, and the unwary settler finds, when it is too late, that the value is practically nil; sometimes it may be just suitable for pulpwood but so situated that he cannot get a market for it. Dr. Fernow, in his report on the Clay Belt of New Ontario, along the 200 miles of the National Transcontinental Ry., pointed out to the Commission of Conservation, in 1913, that "probably 50 per cent of the area involved does not contain any wood values, and that probably the same percentage of it is, under present conditions, undesirable for open settlement," also, "many a settler will be misled into taking up unsuitable lands, and the experience of old Ontario (or the Trent watershed) will be repeated, namely, of abandoned farms or else a degenerated population."

Amongst all the causes which are tending to defeat the object which we have in view, that is, the placing of the right settlers on the land and increasing the production from the soil, perhaps the most serious is, that, consciously or unconsciously, we lay stress on the speculative side of land ownership rather than on the value of the land for what it will produce; in doing which we are appealing far too largely to a class of settler who will put in his stipulated amount of residence and clearing of the land, with the chief object in view of selling out as improved property as soon as possible after obtaining his patent rights.

Present Land System Makes Social Intercourse Difficult

There is also an inducement for settlers to take up more land than they can properly work, or have capital to manage, with the idea again in view, that a part can be sold at a good profit later; this has a tendency to throw the farmers farther apart from each other. Another factor tending towards the same result is that where land is sold by agents it is to their advantage to make sales scattered over as big an area as possible, with a view to future sales; the whole system, in fact, tends to scatter rather than concentrate the farms, and it is hardly to be wondered at that men leave the land for the towns under a system which has a constant tendency to make social intercourse more difficult than it need be.

All this points very strongly to the need for a better system, for it is evident that, with all the energy expended, our present system of land settlement and tenure, even under normal conditions, does not offer sufficient attraction to the right class of settler, and does not induce or enable all those to remain on the land who would wish to be farmers, otherwise our rural population would be increasing rather than decreasing. It is the system of settlement, or something closely allied to it, that is at fault, and not the lack of fertility of the soil.

We need some change which will make agricultural work more attractive and more profitable for the ordinary settler of small means.

In considering any system of land settlement in this country, and particularly in Ontario, which has for its objects increased agricultural production and retaining on the land more of the right class of farmer, the writer considers that special consideration must be given to the following fundamental requirements:—

1. The selection of suitable farm lands
2. The elimination of the speculative element
3. Organization and concentration
4. The improvement of facilities for social life

5. The supply of capital to farmers
6. Security of tenure.

Government Should Establish Farm Homes For Rental

To meet the above requirements it is suggested that the Government should first select a portion of Crown lands suitable for development and obtain an expert survey for the purpose of deciding which portions are suitable for open settlement and which require re-forestation. A plan should then be prepared, showing the proposed farms of any reasonable size that may be decided on, with the locations of the homesteads, the roads and all transportation facilities. The clearing of the farm sites should next be proceeded with, on a properly organized basis, by Government-owned machinery and under Government control. The clearing of the farm sites could also be carried out in conjunction with a system of re-forestation where required, as the two operations could be most economically carried out together. Homesteads for the farms should also be built by the Government, arranged, as far as possible, so as to form small communities; the arrangement of the farm houses in groups would have considerable value from the social point of view. These farms should then be rented out to settlers at as low rental as possible, with absolute security of tenure. Government loans to the farmers for the purchase of stock and implements should also be arranged; and all farms should be subject to Government inspection.

The suggested scheme would eliminate some of the disadvantages of our present methods, and meet the requirements previously mentioned in the following manner:—

1. Intending settlers would have the assurance of the Government that the farms were suitable to their purpose, and would not be running the same risk as at present if they selected farms without first inspecting them. Under the present system, settlers are too much in the hands of often unscrupulous agents, and are frequently persuaded to take land that is of little use to them. It would be, in every way, to the advantage of the Government, however, to select only the most suitable lands, so that they might not be at a loss in having poor farms on their hands. The lumber values would be made the most of, as this would be all handled by the Government and would go to offset the cost of clearing and making farms.

2. The suggested system would attract only those people who intended settling on the land and making a living by the agricultural produce, and these are the only useful settlers; there would be no inducement or possibility for speculators to take up land and hold it out of use, or farm it for a short time with the idea of selling again at an enhanced price as improved land.

3. From the point of view of economy, there would be a great advantage over present methods, in that there would be an organization of forces for the purpose of developing large areas in a systematic way. By the use of suitable machinery, clearing work, stumping and breaking the land would be done at a fraction of the present cost, and intending settlers, skilled or unskilled, could be provided with immediate employment on this work until they were placed on proper farm work. Incidentally, also, this should be extremely useful work in the relief of

unemployment at times, when combined with road-making and reforestation. The concentration of farms, instead of the promiscuous scattering under the present method, would tend towards economy of roads and transportation facilities; and would lessen to a tremendous extent the risk from forest fires, as the houses would be arranged in small communities within a large cleared space. It would be possible, too, and probably more economical, to serve each group of farms from one common water supply, which would tend to improve the general sanitary conditions.

4. One generally recognized drawback to the farmer's life, *viz.*, the lack of facilities for social intercourse, would be considerably lessened by a reasonable grouping of the farm houses. Widely scattered, as they sometimes are, it is no wonder that, after spending many years in an isolated position, the farmer—and particularly the farmer's wife—is glad to give up and come into the town as soon as he has managed to get together a small amount of capital. A properly organized and planned scheme of settlement should do much to make the life less lonely than it is at present. It is useless to expect such concentration under the present method of working, as each individual is thinking only of his particular farm, and not considering it at all as part of an organized system.

5. The work of clearing the land and building the homestead represents a considerable amount of capital to the settler, and the provision of this by the Government would put him in a much better position for commencing actual productive work; it would, of course, have to be paid for in the shape of rent. But even this help is none too much, for there are many settlers who come to this country with the idea of farming who have practically no capital at all, and it would appear to be necessary to provide capital at low rates of interest on long term loans; to enable farmers to provide the necessary implements and stock. This capital is now often provided by machinery firms and money lenders, to whom the farmer pays a rate of interest considerably higher than would be necessary for the Government to charge. The loans could be made up to a certain percentage, say 75 per cent, of the improvements made by the farmer in such a way as to protect the Government from loss; possibly on a similar plan to that which has been carried out successfully in New Zealand for many years.

6. Security of tenure to the farmer is a most important matter; the lack of this is one of the greatest evils of the landlord system in Britain, and, perhaps, has much to do with the feeling that in this country, come what may, a farmer must own his farm. The farmer must be able to feel that he can remain in undisturbed possession of his farm, or he cannot be expected to put his best into it, and there is no reason why this should not be fully assured to him under Government ownership.

A splendid suggestion was made by Dr. G. C. Creelman at the meeting of the Civic Improvement League in Ottawa on January 20th, 1916. It was, in effect, that Government farms should be started where intending settlers could get work at a moderate wage, and have actual experience of Canadian farming under expert supervision; it would have the effect of enabling those who found that they were not suited for the life, to get out of it again before they became tied up to a business which, for them, might mean failure. These, what may be called, school farms would work in well as a part of the suggested scheme. The intending settler could first get employment on clearing and road work, then go on to the school farms for a time before taking over one on his own account; winter lectures and demonstration work by experts would also help to give those adapted for farming a really practical knowledge of the work.

The initial expenditure for carrying out such a scheme as that outlined would be considerable; this would, however, be counterbalanced by the increased agricultural production, and the rental value of the farms and timber values, due to re-forestation, would, also, in a short time, be sufficient to make the scheme self-supporting.

PROPOSAL FOR A MUNICIPAL BUREAU OF VACANT HOUSES IN CITIES

TO assist those who are in need of suitable housing accommodation, a Municipal Housing Bureau might prove of great value. At such a bureau a register might be kept of all vacant houses and apartments, with full particulars as to the accommodation, rental, etc. Photographs of the houses would not necessarily be required but would frequently be supplied, and this would be a further advantage in facilitating a suitable selection of houses, and limiting the time spent in examination. In cases where houses are in great demand, registration at the bureau might be made obligatory. A small charge (probably not exceeding twenty-five cents) made for each registration would cover the cost of administration. By this means workmen could learn without difficulty, expense, or loss of time, the condition of the housing market in all parts of the city. The advantages which would result from having this information are obvious. The number of houses available at each rate of rental would indicate from time to time either a surplus or deficiency of particular types, and in this way the bureau would be of value to builders, and the supply of houses of all types could be more nearly equated to the demand. Housing conditions would no longer be the subject of uninformed discussion. Information as to the true condition would be always available. The evils of unfairly high rentals in one district would be overcome if vacant buildings were available in another equally satisfactory district. The registration form might require information as to sanitary conveniences and interior decoration. The effect of this would be to improve the general condition of the houses, as those in the best condition would, of course, secure tenants most speedily.

As one of the objects is to save the time of those for whom time is money, the regulation requiring registration might apply only to moderate and low-priced houses. The task of securing a new home generally falls upon the mother of the household, and not infrequently this involves a weary task of walking about from place to place carrying the youngest member of the family and neglecting pressing home duties. This could be largely obviated by a carefully planned system of public registration of vacant houses.—G.F.B.

|| Housing – (Registration bureau)✓

EARLY CIVIC IMPROVEMENT LEAGUES

THE Civic Improvement League of Canada, which was formed in Ottawa in 1916, was not the first of its kind. An association called the Canadian League for Civic Improvement was formed in Toronto many years ago. In a paper dealing with the League and its object, read before the Woodstock Horticultural Society by Major George R. Pattullo, honorary field secretary of the league, it was stated that the League comprised a representative body of Ontario citizens, and the intention was that it should cover the entire Dominion. Its object was stated as being to promote outdoor art and public beauty, and town, village and rural improvement.

More tree planting and better-kept boulevards, parks and play grounds, improvement of structural beauty in public buildings, erection of statues and fountains, the provision of gymnasiums, the improvement of railway station grounds, cemeteries and vacant lots, provision of better sanitation, artistic treatment of public advertising, etc., are referred to by Major Pattullo as among the things which should be dealt with by local branches of the league in cities and towns. In rural districts it was proposed that the leagues promote better roads, improve drainage and fences, tree planting, improve home surroundings and better architectural treatment of bridges, buildings, etc.

The unattractive rural school-houses are referred to, and the fact is noted that the rude surroundings of the school-house would create a bad impression on the children. Complaint is made about the neglected and uncared for church buildings in rural districts and the absence of care upon the part of the citizens in improving the surroundings of their places of worship. It is advocated that rural municipalities should have their public park as well as cities and towns. Among other civic reforms which are referred to as important are the improvement of the system of collecting garbage and the cleaning of lanes and alleys.

From Major Pattullo's paper it would appear that the organization had intended to deal primarily with the artistic improvement of cities, towns and villages, although mention is made of several matters directly connected with public health, such as sanitation and public parks. The league does not seem to have survived any length of time, but information is not obtainable as to its history and achievements.

In Hamilton the Civic Improvement Society was organized in 1900. The object of the society was stated to be the promotion of improvement in the cleanliness and beautifying of the city. According to the printed information regarding the society, it was under the management of an executive committee, with Mr. R. Tasker Steele as president and Mr. C. O. Dexter as secretary. Citizens were invited to pay one dollar for membership and attention was called to the need of making a healthful and beautiful city and improving the city churches, schools and public institutions by planting trees and laying out gardens and boulevards. A booklet was issued, containing a list of the city by-laws which affected the comfort and convenience of citizens and the appearance and cleanliness of the city. It was also stated that "any complaints of neglect of these by-laws, sent to this society, and signed with the name and address of the complainant, will receive attention; such name and address being treated as strictly confidential."

Civic improvement – Canada ✓

The by-laws deal with such questions as the cutting of noxious weeds, of obstructing sidewalks, and littering alleys. Information is given in the booklet relative to fire alarms, and also hints to young people to assist in keeping the streets clean, etc.

The example of the Hamilton Civic Improvement Society in issuing the by-laws in this form for the information of the citizens is one which might well be followed by existing Civic Improvement Leagues.

It would be interesting to have further particulars of the above Societies and of any others which have been formed in past years for the purpose of promoting civic improvement.

FUEL FROM HOUSE REFUSE

THE disposal of house refuse, by the most speedy means and at reasonable cost, is an ever present problem in connection with city administration. Methods have to be varied to suit differences in climate and differences in the nature of the heterogeneous collection of material of which the refuse is comprised. Even without attaining the theoretical ideal of daily removal, the cost of the public service of collection and disposal of refuse is enormous, and adds considerably to the burden of the tax revenues of every city.

The question is often asked, Could not some scheme be devised to commercially utilize the material collected, so that part of the cost of collection might be met, and a great waste be avoided? There are two principal methods of disposal now in vogue: First, the unsanitary method of dumping the refuse in heaps; and, second, the sanitary and better, but costly, method of the destructor.

In England the cost of collecting refuse and destroying it has been the subject of much comment during recent years. By some it is claimed as a great waste in not utilizing the heating value of the refuse. This matter has been the subject of considerable study on the part of well known municipal and sanitary engineers in the Old Country. Among these is Mr. Reginald Brown, M. Inst. C.E., Engineer to the Southall-Norwood council.

Mr. Brown points out that the difficulty of obtaining the full heating value of house refuse was due to the following, among other, causes:

1. The difficulty of getting rid of it quickly, to prevent its accumulation becoming a nuisance
2. Its large bulk in comparison with its weight, the excess of air required for combustion, and the large percentage of moisture
3. Presence of tin cans, which must be sorted out.

He claims that most attention needs to be drawn to the calorific value of the refuse. If we were to succeed in conserving and utilizing it for steam-raising and heating purposes—and if this could be done in accord with sanitary principles—it would solve the problem.

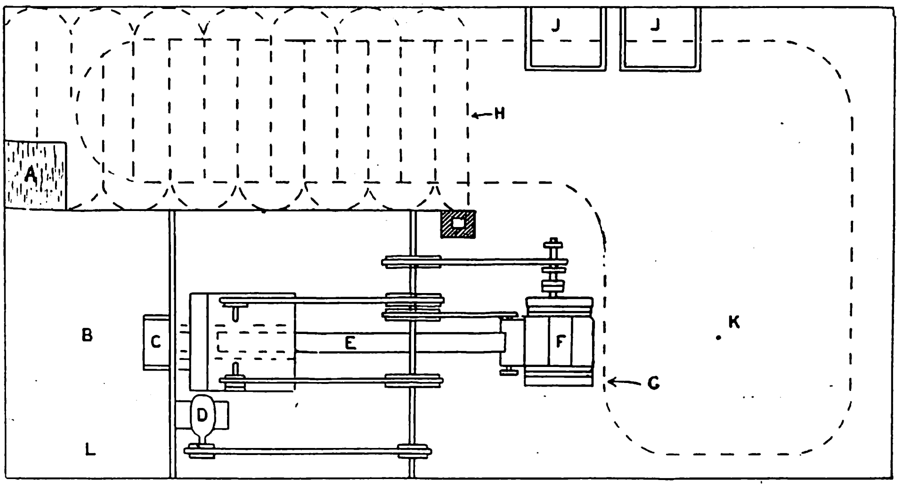
TREATING AND BRIQUETTING OF REFUSE

Mr. Brown has devised a process by which he claims that economical utilization of the refuse can be attained without sanitary inefficiency.

In the *Sanitary Record* of October, 1916, he described the process as follows:—

> "Briefly speaking, the process is one of crushing, pressing, and impregnating. The crushing reduces the refuse to a powder, the presses convert the powder into briquettes, and the impregnating not only binds the material so as to facilitate handling, but also increases the calorific value of the fuel, and, what is more important, destroys all organic matter. There is, therefore, no fear of any nuisance arising from the process, no matter where it is carried on. The refuse is dealt with as soon as it is received at the works, and converted from a condition, in which a very short storage would lead to offensiveness, into a condition in which it can be stored for any length of time, and used as a fuel *as* and *when* and *where* required. Local authorities have here a method both of economical disposal and sanitary efficiency—economical, because the refuse can be dealt with at a cost below the worth of the finished article—and sanitary, because the method is "nuisance free." The design and lay-out of the necessary plant will, of course, depend upon local conditions and the nature and quantity of the refuse."

One form of installation is illustrated on the accompanying diagram.



Diagrammatic Plan of Fuel-Making Installation
Proposed by Reginald Brown, M. Inst. C.E.
(*Actual plant designed according to output and site*)

Note: A Small furnace for burning rags, etc., if necessary and to heat dipping mixture in tank above; flues from this furnace may be taken as H (below floor) to facilitate the drying of briquettes. B—Entrance for carts. C—Crusher. D—Motor, or L—Gas or steam engine. E—Elevator from Crusher to press. F—Press. J J—Dipping tanks. K—Store for finished briquettes. G—Overhead girder with travelling pulley for taking trays from press to drying store over H, and for dipping trays in tanks J and carrying to store K.

The plan here illustrated is intended for dealing with the refuse of an English town. In Canada we have entirely different conditions, in regard to climate, distribution of buildings, and character of material comprised in the refuse. We have also to recognize that the high cost of labour makes it less easy in Canada to make economical use of bulky material requiring a large amount of labour to convert it into a commercial product. On the other hand, the cost of fuel in Canada is so much higher than in

England that, given an economical method of conversion and a good heating material, it might be more profitable to apply the process in Canada than in the Old Country.

Mr. Brown suggests that the 'cheap heat' obtainable by his process would enable local authorities to convert sewage sludge into fertilizer.

Cheap Heat Obtainable from Sewage Refuse

> "The solution of the problem of 'cheap heat' has also another important bearing on the ramifications of local government, viz., on the disposal of sludge at sewage works. It is a well-known fact that if it were possible to convert sewage sludge into a convenient form for utilisation as manure, there would be a good opening for development in this direction. Investigators into the question have all been regretting the want of a source of cheap heat, and yet such a source has been at hand all the time—only waiting to be tapped. There seems to be no reason whatever why the heating value of refuse should not be conserved, if only for this purpose. Refuse disposal works, as a rule, are in the vicinity of the population. Sewage works, on the other hand, are, as a rule, at some remote distance. Without some such process as here outlined the local authority is not only wasting good material, which can and ought to be conserved and converted into fuel, but is also losing a source of income which might arise from the conversion of sewage sludge into a fertilizer."

The whole question of sewage and refuse disposal needs full investigation. Whatever practical results may come of Mr. Brown's studies, he deserves the thanks of all sanitarians and civic rulers for having investigated the problem and made constructive proposals for dealing with it. The matter should not be left to be dealt with by private research and at private cost; it needs to be investigated in the public interest and should be the subject of public inquiry.

HOUSING SCHEME AT POINTE-AUX-TREMBLES

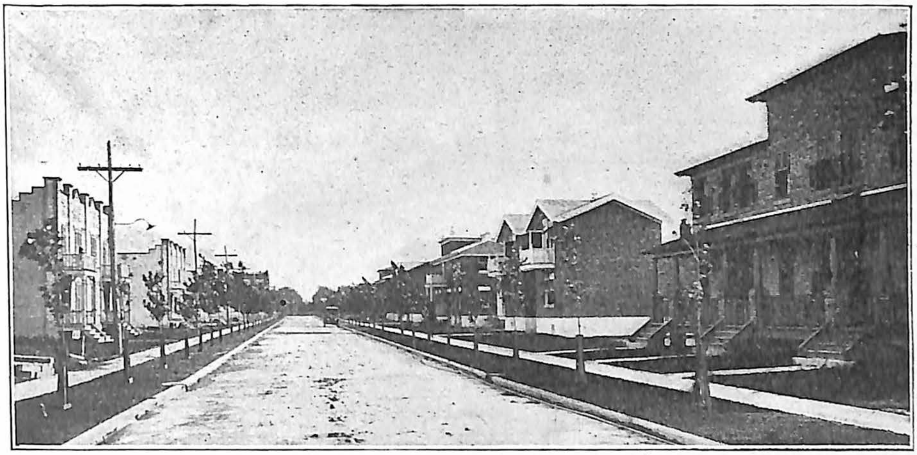
> *Homes for human beings. Cosy, comfortable, bright homes, where father and mother and the whole troop of children can live in safety and gladness, feeling what a happy thing it is to be alive in the world—and most of all to belong to each other—in great things and in small.—*
>
> Henrik Ibsen, "The Master Builder."

An interesting housing scheme is being carried out at Pointe aux Trembles, near Montreal, under the Quebec Housing Act. The Act, which is similar to the one in operation in Ontario, enables local authorities to guarantee the bonds, with a restricted dividend, of a private housing company. La Société des Logements Ouvriers was recently formed, with Mr. R. Prieur as president, for the purpose of operating under the Act. A portion of the capital has been raised locally, and the remainder is being raised on bonds guaranteed by the local councils.

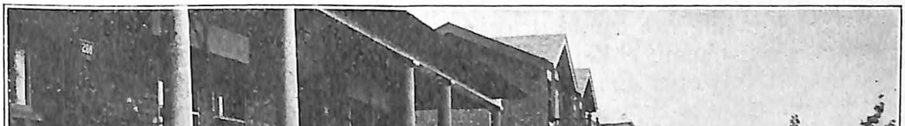
A substantial beginning has been made, and a considerable number of houses erected. At first the type of house was less pleasing in appearance, and could not be commended from an architectural standpoint. Some of these earlier types are shown on the accompanying view of Fourth avenue, as well as the later types, which are being built of red

Housing companies V.

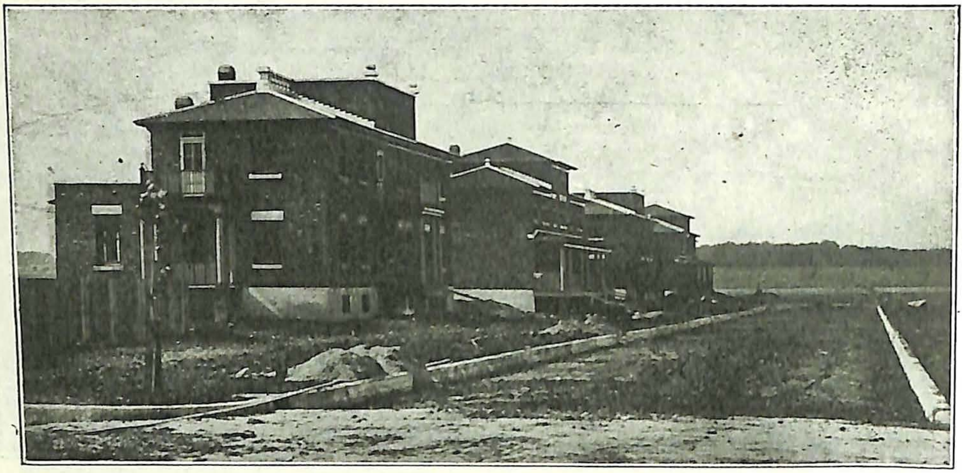
[illegible]



FOURTH AVE., POINTE-AUX-TREMBLES, NEAR MONTREAL
Houses on the left were first erected, while those on the right were more recently completed.



FOURTH AVE., POINTE-AUX-TREMBLES
Note the encouragement to tenants to keep the gardens in good order by having them handed over in the condition shown in the picture when the houses are first occupied.



Pointe-aux-Trembles

View of houses and street before completion

brick. We hope to show a plan of the scheme, and give further details regarding the operation of the company, in the next issue of Conservation of Life.

Meanwhile, we would draw attention to the sound principles upon which this scheme is being operated. The houses are being erected in comparatively open country, where land is not too high in value, although it is accessible to the street railway service that connects with Montreal.

The scheme embraces the development of a great part of the district, and a considerable area has been reserved for the erection of factories and warehouses. The latter will not be indiscriminately mixed up with the dwellings. The houses are built of durable material, and well finished in every detail. Concrete pavements and sidewalks are constructed, and the gardens are laid out and planted before houses are occupied. One cannot conceive of any person being attracted by opportunities to purchase lots and erect their own isolated dwellings, even with all the advantages of ownership, when they have the chance to rent a home from a society of this kind.

The scheme will afford a valuable object lesson to the rest of Quebec, and indeed to the whole of Canada. These are difficult and expensive times in which to build, and if the society can operate successfully under present conditions, it will be bound to succeed when times are normal. We want more people in Canada, but we must first make available for them better places in which to live.

TUBERCULOSIS: A DISEASE OF INSANITARY LIVING

By

P. H. Bryce, M.A., M.D.

PEOPLE who live in temperate climates necessarily inhabit houses requiring to be closed in inclement weather, and have had to establish a harmony with an air environment which may truly be called an artificial climate. It is in relation to this house climate that the people of civilized communities have especially to study how they may best establish a complete harmony.

Constituents of Air

Normal air everywhere contains the same constituents, which are nitrogen and oxygen in the proportions of nearly four of the former to one of the latter, with incidentally a minute amount of carbonic acid of three parts in ten thousand of air. Such is found everywhere, over great expanses of water, of forest and of mountain where there are few residents, to contain almost nothing else than gases; but where population increases and human industries are carried on, many particles of dust from cultivated fields, streets and yards, stables and factories, and the bodies of men and animals are to be found, these reaching, on a windy day, as many as a million particles in a cubic foot of air, while living particles or microbes in the air of a hospital may reach 40,000 per cubic metre. In addition to such dust particles are the seeds of many plants and the spores of moulds and fungi, some of which live upon dead organic matter, while others live and multiply in the air passages and tissues of men and may become the exciting causes of disease.

When it is remembered that air at five miles an hour causes a change of the atmosphere around a person standing still of some 25,000 times, while with warm air moving at the rate of more than six feet a second a draft is felt, it must be plain that, as persons breathe seventeen times a minute, and even while sitting exhale at least 30 cubic inches of air, they not only will inhale a cubic foot of air every three minutes, but will also exhale the same amount, giving off not only carbonic acid to the extent of 25 per cent of the air exhaled, but also any dried particles from the mucous surfaces of the respiratory passages. In addition to this, particles of epidermis and whatever clings to it are constantly given off from the hands and exposed parts of the body, and these often contain living particles, either vegetating on the skin or picked up from the objects which are everywhere handled. It is under such conditions of life, especially in the houses of our cities and crowded work-rooms and stores, that such particles, being the direct cause of some disease such as smallpox, scarlet fever or tuberculosis, may become, by contact, as they pass into the air and by touch, immediately dangerous to individuals of all ages.

Contamination of Air

In addition to this direct source of disease, we have special cases where the dangers are greatly multiplied, as where individuals known to be suffering from open cases of tuberculosis contaminate the air enormously, both by particles of moisture from the throat while speaking and coughing, and by expectorations which contain millions of the bacteria or direct agents of the disease.

Other special sources, such as the milk supply from tuberculous cattle, do increase the danger of infection from this disease, especially in children; but if the problem of living in houses in harmony with the environment is to be adequately solved, it must be especially realized that it is the particles discharged into house atmospheres and on to walls and floors of rooms which must be dealt with if tuberculosis is to be eliminated from any population.

The problems of dealing with and of preventing tuberculosis will, therefore, it is apparent, mean the removal, so far as in practice is possible, of the dangers directly attaching to the tuberculous person, such as a consumptive who expectorates enormous numbers of the germs of the disease, and thereafter of cleansing the air, the person's clothing, the furniture, the floors, and walls of rooms which he has occupied, and of providing in all such places the largest amount of fresh air that is possible. Education of the individual stands in the first place in the measures for the prevention of tuberculosis, and all persons, whether physicians or members of families where the sick are, should teach and be taught the principles of personal hygiene. In practice, it is found that nowhere do individuals suffering from the disease receive such education so well as in sanatoria, where expert physicians and nurses establish a routine of daily hygiene, which those who have spent a few months under it will practise after they have returned to their homes or gone elsewhere.

Education Needed as to Meaning of Fresh Air

But even greater good will result from the education of the community at large as to the real meaning of fresh air in living houses and living apartments. The weekly sweeping and still more the half-yearly house-cleaning illustrate, as when a carpet is beaten, the infinite number of particles which, unseen, are constantly accumulating in houses. It is further only necessary to leave a room closed in which a carpet is present to appreciate strong odours and the effects of moisture in the decomposition of the organic materials present in it, through the action of microbes which cause decomposition. We thus realize how one of the first steps we must take to keep a house clean is to allow nothing to be on the floors, which will retain particles of organic matter and the microbes which settle upon it, which cannot be readily and frequently removed and cleaned in the fresh air. Thus polished hardwood floors with rugs fulfil best both sanitary and æsthetic household conditions; while in many instances, as in hospitals and places of public resort, nothing serves the purpose so well as well-made modern linoleum, which can be cleaned with a moist cloth, or, still better, frequently rubbed with a weighted felt block, which has been treated with paraffine dissolved in turpentine or with some other wax preparation. What has been said with regard to carpets on floors is similarly true with regard to heavy wool hangings, such as curtains.

Standards of Air Space in Rooms

Inasmuch, however, as we have persons always present in rooms, whose boots and clothing, as well as their persons, carry particles of all kinds of matter, and similarly exhale others by mouth and nose, we must provide some systematic means whereby these persons may not only be prevented from polluting the air unduly, but may also be prevented from suffering from the lack of fresh air. Of course, it is apparent that there must be some limit to the number of persons living in any given space, and a standard has been adopted, under Public School Acts, in most progressive countries, whereby each child must be provided with 2,000 cubic feet of fresh air per hour. In an ordinary schoolroom, the space per child is commonly measured by the floor area of 4 x 5 feet in a room 12 feet high, thereby allowing each about 250 cubic feet. It is apparent that this air will require eight changes per hour to supply the required amount. Heating appliances are now available, whereby fresh air is warmed over steam pipes in the basement of schools and other buildings, and delivered by fans through ducts, which will supply the requisite amount by what is known as mechanical ventilation. The ordinary household, however, is not, on the one hand, subjected usually to the limited amount of air space just indicated; but, on the other, it is not commonly supplied with facilities for changing the air, such as that just described. Some have asserted that enough fresh air comes in around windows and under doors, etc., in northern cold climates to provide the requisite amount of fresh air. This, as a matter of fact, is not true; but

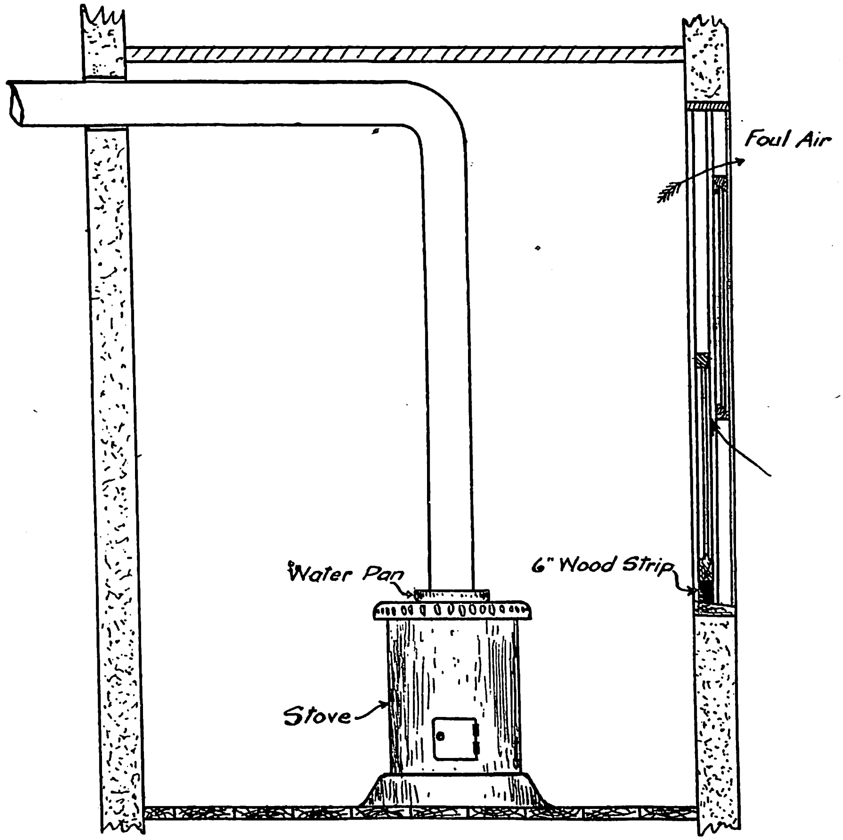


Diagram No. 1—Window Ventilation

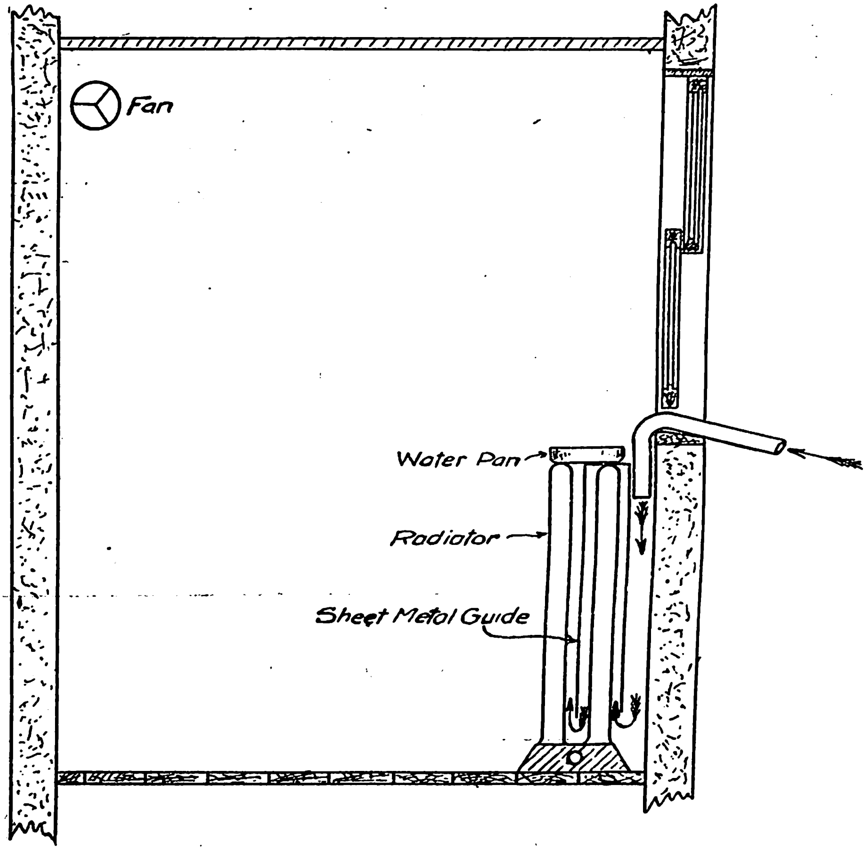


DIAGRAM No. 2—Radiator and Fan Ventilation

even when such air inlets exist, they have the constant defect that it means an uneven distribution of warm air and a sense of draughts about the feet and legs, due to cold air near the floor. Hence, some means should be adopted for insuring the entrance of warmed fresh air to our living rooms. Of course, in houses ordinarily heated with furnaces, it is often possible to minimize the evils due to the lack of ventilation by having the windows of bed-rooms open at night, when the body is protected by sufficient covering; but there is the need for some scheme by which house air can be kept practically at a temperature of 65° to 68° F. and yet be sufficiently changed to maintain its freshness and even distribution.

PROPOSED SCHEMES FOR SUPPLYING FRESH, WARM AIR IN ROOMS

Many more or less effective schemes have been attempted, but the following, applicable under different circumstances, are recommended:

In diagram No. I, it will be seen that a simple stove heater, which may be a base-burner or of any similar type, is utilized, while the room is ventilated by placing a screen made of a well-stretched piece of cotton on a frame above the upper window sash,

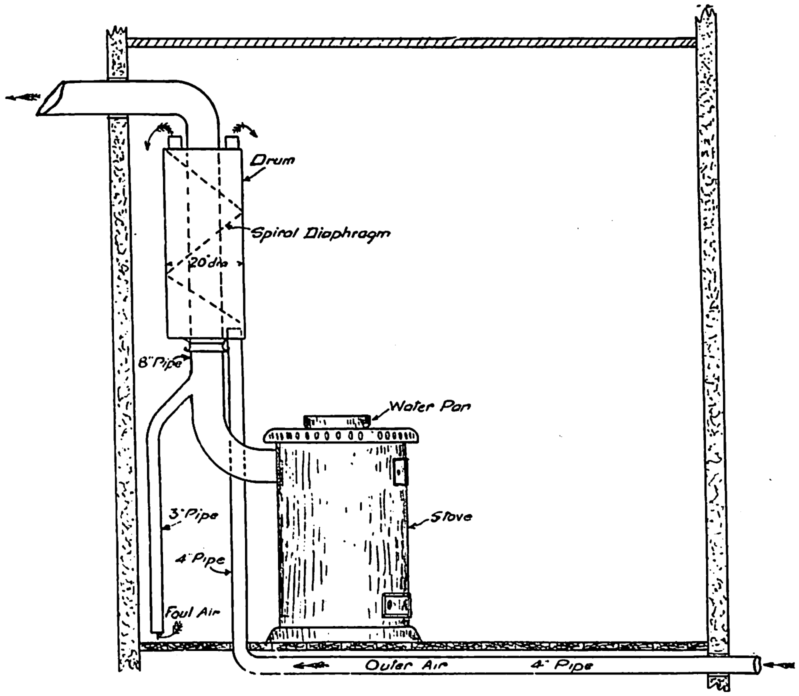


DIAGRAM No. 3—Drum Ventilator, with Foul Air Outlet

which has been drawn down, and so supplying a steady interchange of outer and inner air through a substance which transfers much less heat from the room than a glass surface does. The space below the two sashes provides the inlet for fresh air. This, of course, will operate with double windows having movable panes fitted for the purpose.

Another means of introducing fresh air, which has been adopted with advantage, is that seen in diagram (2) where steam or hot water heating is utilized. Provision is made in this method whereby an inlet duct of tin the width of the window delivers fresh air behind a radiator placed in front of the window. The air is so distributed through the coil by a metal diaphragm between the two rows of coils that it passes into the room, warmed up to the point required and in proportion to the size of the radiator. The system is completed by a small exit pipe leading to the adjoining hall with an electric fan removing the foul air to the extent desired. Several similar openings may supply the requisite outlets for the warm room air even without the use of a fan.

Diagram No. 3 probably represents the most effective and satisfactory scheme for changing the air in the rooms of ordinary houses where a room heater is used. The diagram almost explains itself. An inlet duct for fresh air delivers it into a drum surrounding the stove pipe within which drum the air by a spiral diaphragm is warmed and passes into the room at the top of the drum. An outlet for foul air, which serves extremely well also for drawing the warm air toward the floor, conducts the room air into the draught of the stove-pipe and so maintains a pleasant even room temperature with a constant change of air.

Diagram No 4 serves very well large rooms, such as country school rooms and lumber camps, etc., where a large wood stove is used for heating.

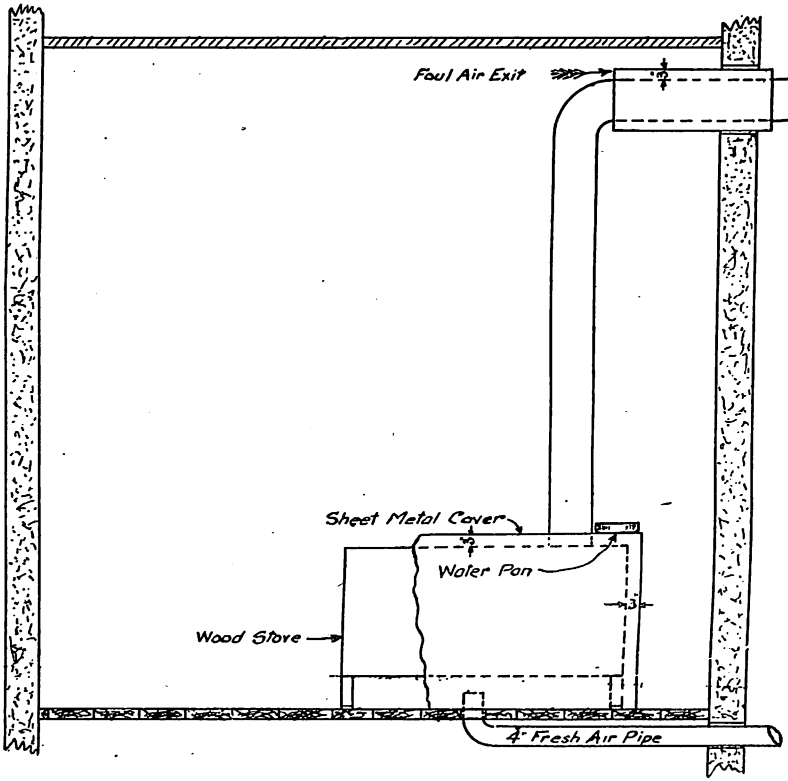


Diagram No. 4—Rural School and Camp Ventilation

Fresh air is brought in beneath the stove, which has a sheet-iron outer cover which enables the air to be warmed well around the stove before being delivered into the room. The foul air is extracted by an outer pipe around the upper portion of the stove pipe. The distribution of the warmed air in such a large room is thoroughly effected by connecting ducts leading from near the floor in each of the four corners of the room up to the exit duct around the stove-pipe. These pipes serve the double purpose of extracting the cold air from the corners of the room and so having warm air pass toward the outlets, while at the same time drawing the air off next the floor, thereby maintaining the lower air at a proper temperature.

Maintaining Humidity of Indoor Air

In each of the cases illustrated, nothing has been said about the necessity for maintaining the humidity of indoor air at a normal. When it is remembered, however, that air at zero can only hold at saturation point 0.48 of a grain of water in a cubic foot and when it is realized that this outer air warmed up to 70°F. would hold approximately seven grains of water, the result of warming outer air without supplying it with some means of moisture is evident. In practice it is found that such indoor air in an ordinary dwelling does not have more than 25 per cent of relative humidity, with the consequence that it abstracts moisture from furniture, walls and the bodies of inmates, creating in such a sense of cold due to the insensible loss of body moisture through evaporation and so requiring a temperature of 70° to 75° F. in order to maintain comfort. To obviate such serious defects in house air, it is possible, wherever hot-air, hot water or steam is used in a house, to supply a constant amount of steam from a metal heater placed over the fire of the furnace, water being supplied to the evaporator at the same time automatically from the city water supply.

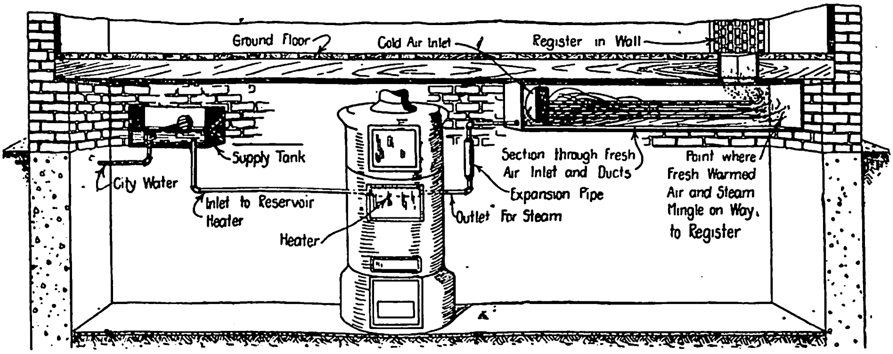

Ground Floor
Cold Air Inlet
Register in Wall
Supply Tank
City Water
Inlet to Reservoir Heater
Heater
Section through Fresh Air Inlet and Ducts
Expansion Pipe
Outlet For Steam
Point where Fresh Warmed Air and Steam Mingle on Way, to Register

DIAGRAM 5

The apparatus consists of (*a*) a hollow casting or a series of pipes coupled together and placed over the fire beneath the sections of the boiler with the inlet pipe attached to the public water supply through an ordinary closet tank, set in the cellar at such a level as to just keep the heating reservoir filled. (*b*) The exit pipe leads directly to the flower room or other convenient place in the house, where it delivers steam directly and through the *law of expansion of gases* diffuses itself throughout the house, so that everywhere the degree of humidity is in practice the same. The automatic character of the water supply regulates nicely the moisture in the house, because, if the weather outdoors is cold and dry, the amount of heat required is greater, the fire burns brighter and the evaporation is more; while, if the outer atmosphere be mild and consequently holds more moisture, the fire will be burning less brightly and the amount of water evaporated will be proportionately lessened. It is desirable in order to make such a system effective that means be provided for introducing fresh air constantly into the house along with the moisture to maintain the sensation of freshness associated with moving air. It is found possible to warm outer air by passing it through a chamber in tubes which are surrounded by the steam as it moves toward the flower room, since as the air is warmed its capacity for moisture increases, and when the two are mingled they pass into the house atmosphere without any precipitation of moisture whatever.

The proper application of this sytem will maintain house air at a pleasant humidity of 50 to 55 per cent, while by a method shown in the diagram, the steam may be utilized to warm fresh air as it is introduced into the hall or living room of the house. The law of diffusion of gases operates so completely that hygroscopic tests will show air in all parts of the house to maintain practically the same relative humidity.

Realizing the defects and cost of methods adopted in schools and other places of assembly in supplying enough fresh air with an even distribution, recent experiments have been made tending to prove that the amount of carbonic acid in the air of a room given off from the lungs of persons is not in itself deleterious; but that the essential thing is to have the air which surrounds the individual, whose body temperature is 98.4° F., constantly replaced; or, in other words, that practically all the requirements of ventilation are met so long as the air of a room is kept in motion. While it is true that movement of the air in rooms is most desirable and necessary, the facts as herein set forth seem to supply ample evidence of the necessity of bringing to persons who have to live much indoors a steady supply of warmed fresh air, if they are to maintain themselves in good health and minimize the dangers from those who suffer from tuberculosis to those living with them.

RECONSTRUCTION AND REDEVELOPMENT AT HALIFAX

Extract from Preliminary Report of Mr. Thomas Adams to the Commission of Conservation

THE great calamity that has befallen Halifax has brought about new conditions and entirely changed the whole aspect of the problems to be dealt with. As a result of the calamity a serious effort should be made to prepare a sound scheme of development worthy of the city. There is now a great opportunity to improve the industrial facilities and housing conditions of Halifax. We may thereby get considerable benefit to the city and to Canada to off-set the material losses sustained in the disaster.

A hurried inspection of the devastated area showed the importance and urgency of the problems to be dealt with. Immediate expropriation has been suggested, but this is not desirable until after full investigation and until the principles on which provision may be made for indemnifying those who have lost their property are settled.

Problems Created by the Disaster

From investigations made, it appears that about 794 residences and other private buildings have been completely destroyed; 337 partially destroyed and 394 injured to an extent from 15 per cent to 30 per cent of their former value. In addition about 5,000 buildings in the city have been injured in part. About 1,500 buildings will have to be rebuilt in the whole city to accommodate the homeless population, numbering about 9,000 persons. The difficulty and expense of providing this re-housing arises from the fact that the greater number must be accommodated twice over. Temporary buildings must be erected immediately to shelter them during the coming year and until permanent buildings are erected.

Of the 9,000 who are said to be homeless, 1,000 are in hospitals, while about 8,000 others are in temporary lodging in public buildings, are guests in private houses, or have left the city.

In any question of re-housing these people, consideration should be given to their weakened vitality, as the result of the shock and injuries they may have received.

Extent of Financial Loss

The extent of the financial loss cannot be computed, but some general estimate may be made of the cost of reinstating the homeless population. Many of the buildings destroyed were flimsy in construction, and, if proper steps were taken to erect more permanent homes, the city might reap some economic advantage from the disaster. To provide temporary housing for 9,000 people, even with the assistance of the Militia Department, and to rebuild their homes or erect others in lieu of those destroyed, and to repair the injuries to other buildings, may mean an expenditure of $6,000,000. This will be apart from the heavy expense to be incurred by the Federal Government and the city of Halifax in re-instating public buildings, railway rolling stock, etc., and

||Cp— Canada. Halifax, N.S.
| Reconstruction (after fire).

also apart from the large expense which will be involved in providing for the maintenance of the permanently injured and the re-adjustment of business which has been temporarily dislocated.

First Steps to be Taken

There are three steps which should be taken at once, apart from the erecting of temporary houses and the repairing of buildings. The first is to prescribe an area to the north of North street, in which no new buildings may be erected for a definite period, to enable proper plans to be prepared and also to permit of the work of clearing up the debris to be carried out. Exceptions to this may, however, be permitted in the case of the temporary houses to be erected by the reconstruction committee and, of course, in respect to any public works that are necessary in connection with naval and railway works.

The second duty will be to apply as much labour as possible to the clearing up of the debris on the devastated area, so that on the arrival of spring, everything will be in readiness to commence the new development.

The third duty is to establish a small commission representative of the Federal, Provincial and City Governments, to prepare a plan of development and control the expenditure of relief funds, other than the ordinary revenues of the city, during the two or three years which will be necessary for reconstruction and for settlement of the problems created by the disaster.

The following matters of importance need attention in any scheme of re-development:—

1. The improvement of the railway facilities, so as to particularly serve the industrial development of Halifax and neighbourhood;
2. The increase of suitable industrial sites, available for erection of factories and warehouses, in proximity to the harbour and railways, so far as this can be obtained in the northern part of the city, with due regard to the undulations of the land and the requirements of the naval and railway authorities;
3. The improvement of the road approaches to the city from the north, and the lessening of the grades of the principal streets in the northern part of the city;
4. The linking up of the existing streets, sewers and water mains with any new scheme of development, so as to secure the minimum loss to the city.

Temporary Housing

I have recommended the reconstruction committee to erect the terrace cottage type of temporary dwelling with separate sanitary appliances for each family. The sizes of the dwellings should be reduced to the minimum, rather than sacrifice sanitary convience. I am persuaded that small dwellings, with the privacy and cleanliness which can be obtained in the terrace cottage type, will not involve greater cost per family than in the proposed tenement system, with public lavatories and wash-houses. I have submitted plans for suggested types to the committee, with a report on the subject of temporary housing.

CIVIC IMPROVEMENT IN CANADA

At the request of the local authorities special attention is being given by the Town Planning and Housing Branch of the Commission of Conservation to the question of planning the re-development of Halifax.

The Quebec Government proposes to introduce a Bill in the present session to form a Bureau of Municipal Affairs for the Province.

A Town-Planning and Rural Development Act has been passed in Saskatchewan. The Act contains a number of new features, which are improvements on previous town-planning legislation. There are now six provinces in Canada with Town Planning and Development Acts.

A Toronto Committee is taking steps to organize a Canadian Housing Conference in Toronto in the spring of 1918. The question of housing in Canada is in urgent need of attention, especially in connection with the new industrial developments that have occurred as a result of the war.

Civic Improvement Leagues have recently been formed in a number of cities and villages in Manitoba and British Columbia. Secretaries of new leagues are requested to send the names and addresses of their members to the Commission of Conservation so that they may be put on the mailing list for civic improvement literature.

HERE then is the opportunity and the task before us. The democratic nations, and ours amongst them, will emerge from the present conflict with a new faith in the possibilities of free government if inspired by the spirit of freedom. Our men who return from the war will come to us with eyes that have seen things as they are, that have looked steadfastly in the face of death, that have seen and known real greatness and cannot be deceived by the tawdry glory of wealth. We must see to it that we make for them a future Canada, worthy of their patriotism, and worthy of the monuments that shall mark in distant lands the resting places of those whose sacrifice is complete and who shall come to us no more.—STEPHEN LEACOCK.